FOREST CONSERVATION PLANS

OF

LOT 4

AT BAY VILLAGE

TAX MAP 57A, GRID 14, PARCEL 160, LOT 4

979 BAY VILLAGE DRIVE

CITY OF ANNAPOLIS, MARYLAND 21403

SIXTH DISTRICT ANNE ARUNDEL COUNTY ZONED R1 / PM2

FOREST CONSERVATION WORKSHEET - LOTS 1-4

	Net Tract Area		**PM2/R1**
A	Gross Tract Area (LOTS 1-4)	A =	10.34
B	Deductions (Critical Area, area restricted by local ordinance or program): PUBLIC R/W	B =	1.00
C	Net Tract Area (C = A - B)	C=	9.34
	Land Use Category MIXED USE DEVELOPMENT AREAS (2+ USES)		**PM2/R1**
	Afforestation Factor ($F_{afforest}$)		15.00%
	Conservation Factor ($F_{conservation}$)		15.00%
D	Afforestation Threshold (Net Tract Area x $F_{afforest}$)	D =	1.40
E	Conservation Threshold (Net Tract Area x $F_{conservation}$)	E =	1.40
	Existing Forest Cover		
F	Existing Forest Cover within the Net Tract Area	F =	7.68
G	Area of Forest Above Conservation Threshold If existing forest cover (F) > conservation threshold (E), then G = existing forest cover (F) - conservation threshold (E); otherwise G = 0.	G =	6.28
	Break Even Point		
H	Break Even (Amount of Forest that must be retained so that no mitigation is required) (1) If the area of forest above the conservation threshold (G) is greater than zero, then H = (0.2 x the area of forest above conservation threshold (G)) + Conservation threshold (E) (2) If the area of forest above the conservation threshold (G) = 0, then H = ex. Forest Cover (F)	H =	2.66
I	Forest clearing permitted without mitigation (I = existing forest cover (F) - break even point (H))	I =	5.02
	Proposed Forest Clearing		
J	Total area of forest to be cleared (includes the 7.5 foot buffer along forested LOD per City Reqmt) Clearing above conservation threshold Clearing below conservation threshold	J =	5.70 5.70 0.00
K	Total area of forest remaining (K = existing forest cover (F) - forest to be cleared (J))	K =	1.98
	Note: If forest to remain (K) is greater than or equal to break even point (H), then no planting is required; otherwise, compute the planting requirement below (L, M, N, P, Q and R).		
	Planting Requirements		
L	Reforestation for clearing above the conservation threshold (1) If the total area of forest to be retained (K) ≥ conservation threshold (E), then L = the area of forest to be cleared (J) x 0.25; or (2) If the forest to be retained (K) < conservation threshold (E), then L = the area of forest above conservation threshold (G) x 0.25	L =	1.43
M	Reforestation for clearing below the conservation threshold (1) If existing forest cover (F) > conservation threshold (E) and forest to be retained (K) < conservation threshold (E), then M = 2.0 x (E - K) (2) If the existing forest (F) < conservation threshold (E), then M = 2.0 x forest to be cleared (J)	M =	0.00
N	Credit for retention above the conservation threshold If the area of the forest to be retained (K) > conservation threshold (E), then N = K - E	N =	0.58
P	Total reforestation required (P = L + M - N)	P =	0.84
Q	Total afforestation required (1) If existing forest cover (F) < afforestation threshold (D), then Q = the afforestation threshold (D) - the existing forest cover (F)	Q =	0.00
R	Total planting requirement (R = P + Q)	R =	**0.84**
	COMAR 5-1607(B)(2) - Total Planting (Street Trees and Buffers of Public R/W) - SEE SHEET 3 =		0.92
	Additional Planting in cleared areas of FCE - SEE SHEET 2 =		0.04
	Total Planting Provided =		**0.96**
	TOTAL FOREST CONSERVATION AREA= 2.02 ACRES		

SITE LEGEND

PROPERTY LINE

EXISTING CONTOUR 142

EXISTING FOREST

EXISTING SOILS BOUNDARY

EXISTING SOILS DESIGNATION AuB

EXISTING WETLANDS AND 25' BUFFER WB WB WB

EXISTING ZONING BOUNDARY

EXISTING ZONING DESIGNATION R1

EXISTING EASEMENT

EXISTING SLOPES GREATER THAN OR EQUAL TO 15%

EXISTING SURVEYED TREE (GOOD CONDITION)

EXISTING SURVEYED TREE (FAIR CONDITION)

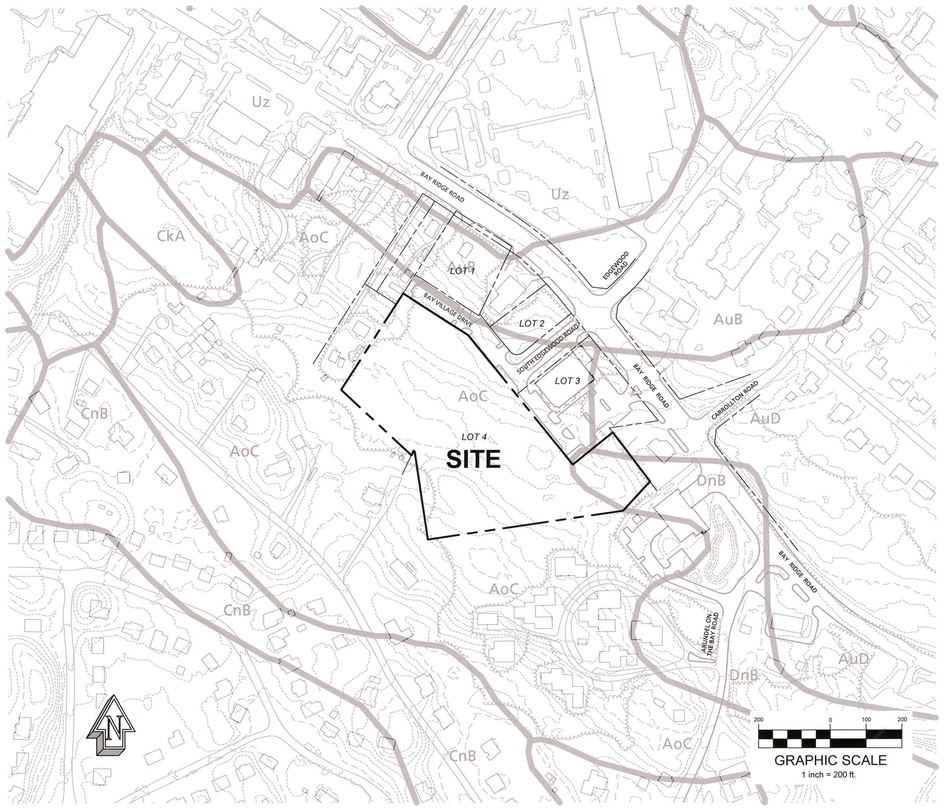
EXISTING SURVEYED TREE (POOR CONDITION) 10

EXISTING LARGE TREE

EXISTING CRITICAL ROOT ZONE CRZ CRZ

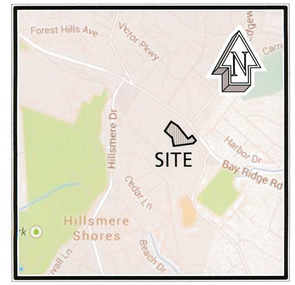
PROPOSED FOREST CONSERVATION PROPERTY

PROPOSED REFORESTATION AREA



LOCATION MAP

SCALE: 1"=200'



VICINITY MAP

SCALE: 1"=2000'

MAP DATA © 2015 GOOGLE

GENERAL NOTES

A. TOTAL SITE AREA: 6.30 ACRES ± (LOT 4 ONLY)

B. TOTAL FOREST AREA: 4.27 ACRES ± (LOT 4 ONLY)
STAND 1 3.61 ACRES ±
STAND 2 0.66 ACRES ±

C. TOTAL FLOODPLAIN AREA: 0 ACRES
FORESTED FLOODPLAIN AREA: 0 ACRES

D. NO RARE, THREATENED, OR ENDANGERED SPECIES ARE KNOWN TO EXIST ON THE PROPERTY.

E. NO KNOWN HISTORIC STRUCTURES ARE LOCATED ON THE PROPERTY.

F. THE FOREST STAND DELINEATION FIELD WORK FOR LOT 4 WAS CONDUCTED BY MICHAEL J. KLEBASKO ON MARCH 25 AND 26, 2015.

G. FOURTEEN (14) SPECIMEN TREES EXIST ON OR WITHIN CLOSE PROXIMITY TO THE SITE (LOT 4) AND THEIR SURVEYED LOCATIONS ARE DENOTED ON THE PLAN AND IDENTIFIED ALPHANUMERICALLY FROM A-N. FORTY-SIX (46) LARGE TREES BETWEEN 25 AND 29 INCHES WERE ALSO IDENTIFIED ON OR NEAR THE PROPERTY AND ARE DENOTED ON THE PLAN WITH SEQUENTIAL NUMBERING.

H. A FORMAL WETLAND DELINEATION IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS' WETLANDS DELINEATION MANUAL AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: ATLANTIC AND GULF COASTAL PLAIN REGION WAS PERFORMED BY MICHAEL J. KLEBASKO (CERTIFIED WETLAND DELINEATOR #WDCP94MD0310109B) AND GARY JELLICK (PROFESSIONAL SOIL SCIENTIST) WAS ALSO CONDUCTED ON MARCH 31, 2015. THE DELINEATION REVEALED THE PRESENCE OF A SMALL, ISOLATED, NONTIDAL WETLAND POCKET IN THE WESTERN CORNER OF THE PROPERTY. THE LIMITS OF THE WETLAND POCKET AND ITS 25-FOOT BUFFER ARE DEMARCATED ON THE PLAN.

I. THE SITE **IS NOT** LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA.

J. THE PROPERTY DESCRIBED HEREIN IS LOCATED IN THE FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS DELINEATED ON THE FIRM FLOOD INSURANCE MAP #24003C0231E DATED OCTOBER 16, 2012 FOR ANNE ARUNDEL COUNTY AND DISTRIBUTED BY THE FEDERAL EMERGENCY MANAGEMENT FACILITY.

K. NO RARE, THREATENED, OR ENDANGERED SPECIES ARE KNOWN TO EXIST ON THE PROPERTY.

L. NO KNOWN HISTORIC STRUCTURES ARE LOCATED ON THE PROPERTY.

FOREST PROTECTION NOTES

1. THE FCP SHALL LOCATE AND DESCRIBE ANY PROTECTION MECHANISMS TO BE INSTALLED TO PROTECT RETENTION AREAS DURING AND AFTER CONSTRUCTION. THESE MECHANISMS SHALL BE FIELD LOCATED AND APPROVED BY INSPECTION PRIOR TO THE START OF CONSTRUCTION.

2. ANY CLEARING, GRADING OR CONSTRUCTION WITHIN 50 FEET OF THE RETENTION AREA WILL REQUIRE PROTECTIVE DEVICES, INCLUDING BUT NOT LIMITED TO, FENCING OR ADAPTED SEDIMENT AND EROSION CONTROL DEVICES AND SIGNS AS INDICATED IN THE APPROVED FCP. ALL PROTECTION DEVICES SHALL REMAIN IN PLACE UNTIL CONSTRUCTION COMPLETION, FINAL INSPECTION, AND AN OCCUPANCY PERMIT, UNLESS WAIVED BY THE APPROVING AUTHORITY. MORE INFORMATION ON PROTECTION DEVICES CAN BE FOUND IN SECTION 3.2.2.

3. FURTHERMORE, THE EDGE OF THE RETENTION AREA WILL NEED TO BE STAKED BY THE APPLICANT AND APPROVED BY THE AUTHORITY PRIOR TO CLEARING. THIS FIELD EDGE SHOULD BE ADJUSTED ALONG THE CRITICAL ROOT ZONES OF THE TREES IN THE PROPOSED RETENTION AREA.

DRAWING INDEX

MAPPED SOIL TYPES

MAP UNIT SYMBOL	MAP UNIT NAME	HYDRIC RATING	DRAINAGE CLASS	HYDROLOGICAL SOIL GROUP	K-FACTOR WHOLE SOIL
AoC	ANNAPOLIS LOAMY SAND, 5% TO 10% SLOPES	NON-HYDRIC	WELL DRAINED	C	0.17
AuB	ANNAPOLIS URBAN LAND COMPLEX, 0 TO 5% SLOPES	NON-HYDRIC	WELL DRAINED	C	0.24
AuD	ANNAPOLIS URBAN LAND COMPLEX, 5% TO 15% SLOPES	NON-HYDRIC	WELL DRAINED	C	0.24
DnB	DONLONTON FINE SANDY LOAM, 2% TO 5% SLOPES	NON-HYDRIC W/ 5% HYDRIC COMPONENTS	MODERATELY WELL DRAINED	D	0.24

SOURCE: http://websoilsurvey.nrcs.usda.gov (JANUARY, 2015)

Wetland Studies and Solutions, Inc. a DAVEY company

FOREST CONSERVATION PLAN CERTIFIED BY:
Michael Klebasko 9-8-15
MICHAEL KLEBASKO DATE
WETLAND STUDIES AND SOLUTIONS, INC.
QUALIFIED PROFESSIONAL PER
(COMAR 08.19.06.01)

Revisions

Rev. #	By	Date	Description

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

Terry Schuman — Date 3/31/16
License No. 19593 — Expiration Date

Bay Engineering Inc.
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2661 Riva Road, Building 800
Annapolis, Maryland 21401
410.897.9290
410.897.9295 fax
email: info@bayengineering.com
www.bayengineering.com

Date SEPTEMBER, 2015
Job Number 15-5208
Scale AS SHOWN
Drawn By LS
Approved By TS
Folder Reference ASSISTED LIVING LOT 4 BAY VILLAGE, ANNAPOLIS

FOREST CONSERVATION COVER SHEET

FOREST CONSERVATION PLANS OF LOT 4 AT BAY VILLAGE
TAX MAP 57A, GRID 14, PARCEL 160, LOT 4
979 BAY VILLAGE DRIVE
CITY OF ANNAPOLIS, MARYLAND 21403
SIXTH DISTRICT ANNE ARUNDEL COUNTY ZONED R1 / PM2

Sheet No. FC1 OF 5

PLOTTED: Sep 06, 2015 - 12:46pm
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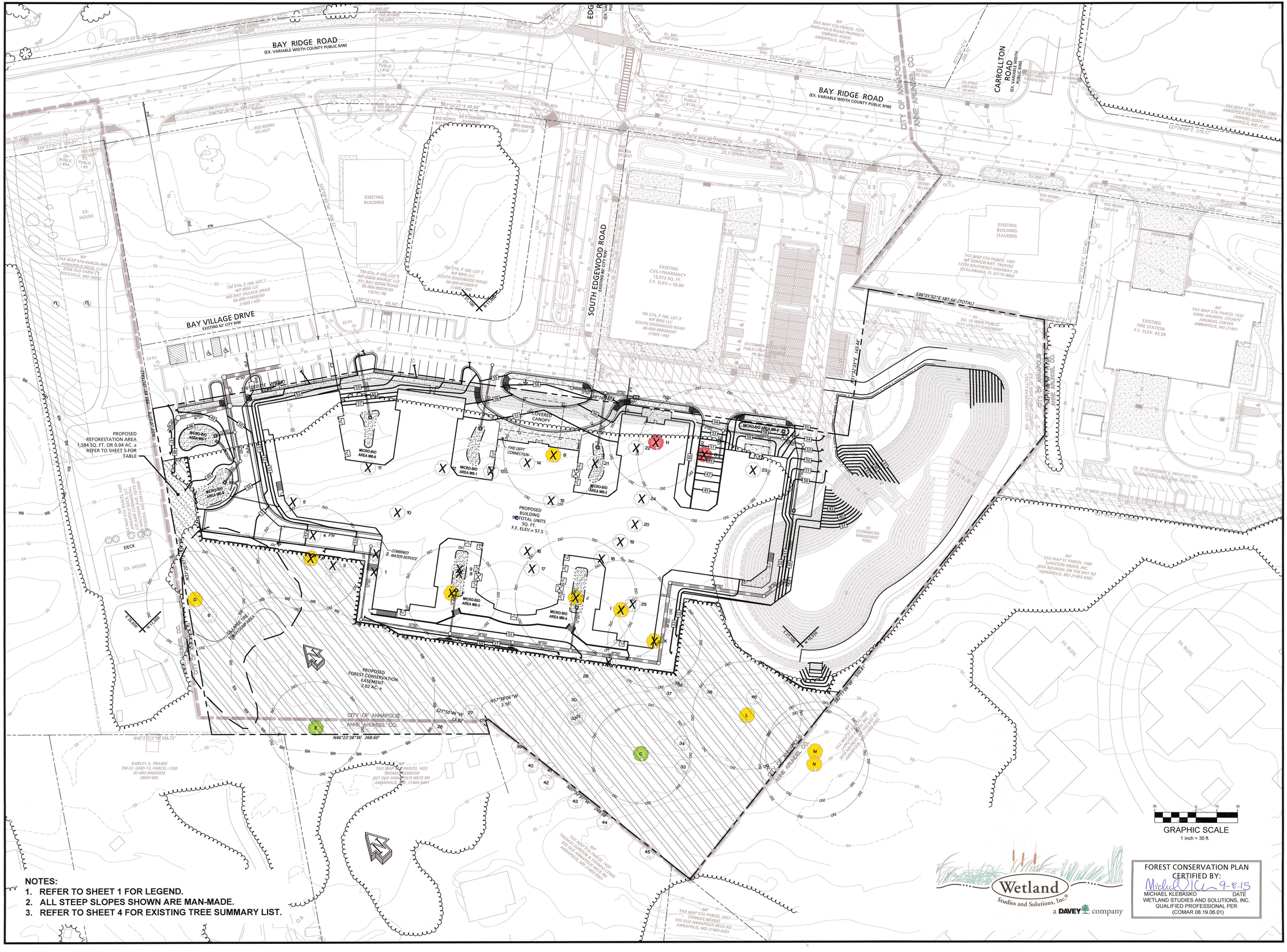

NOTES:
1. REFER TO SHEET 1 FOR LEGEND.
2. ALL STEEP SLOPES SHOWN ARE MAN-MADE.
3. REFER TO SHEET 4 FOR EXISTING TREE SUMMARY LIST.

FOREST CONSERVATION PLAN CERTIFIED BY:
MICHAEL KLEBASKO — DATE 9-8-15
WETLAND STUDIES AND SOLUTIONS, INC.
QUALIFIED PROFESSIONAL PER (COMAR 08.19.06.01)

Wetland Studies and Solutions, Inc. a DAVEY company

Revisions

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Terry Schuman — Date 3/31/16
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www.bayengineering.com

Date SEPTEMBER, 2015
Job Number 15-5208
Scale 1"=40'
Drawn By LS
Approved By TS
Folder Reference ASSISTED LIVING LOT 4 BAY VILLAGE, ANNAPOLIS

FOREST CONSERVATION PLAN
FOREST CONSERVATION PLANS
OF
LOT 4
AT BAY VILLAGE
TAX MAP 57A, GRID 14, PARCEL 160, LOT 4
979 BAY VILLAGE DRIVE
CITY OF ANNAPOLIS, MARYLAND 21403
SIXTH DISTRICT ANNE ARUNDEL COUNTY ZONED R1 / PM2

Sheet No. FC 2 OF 5

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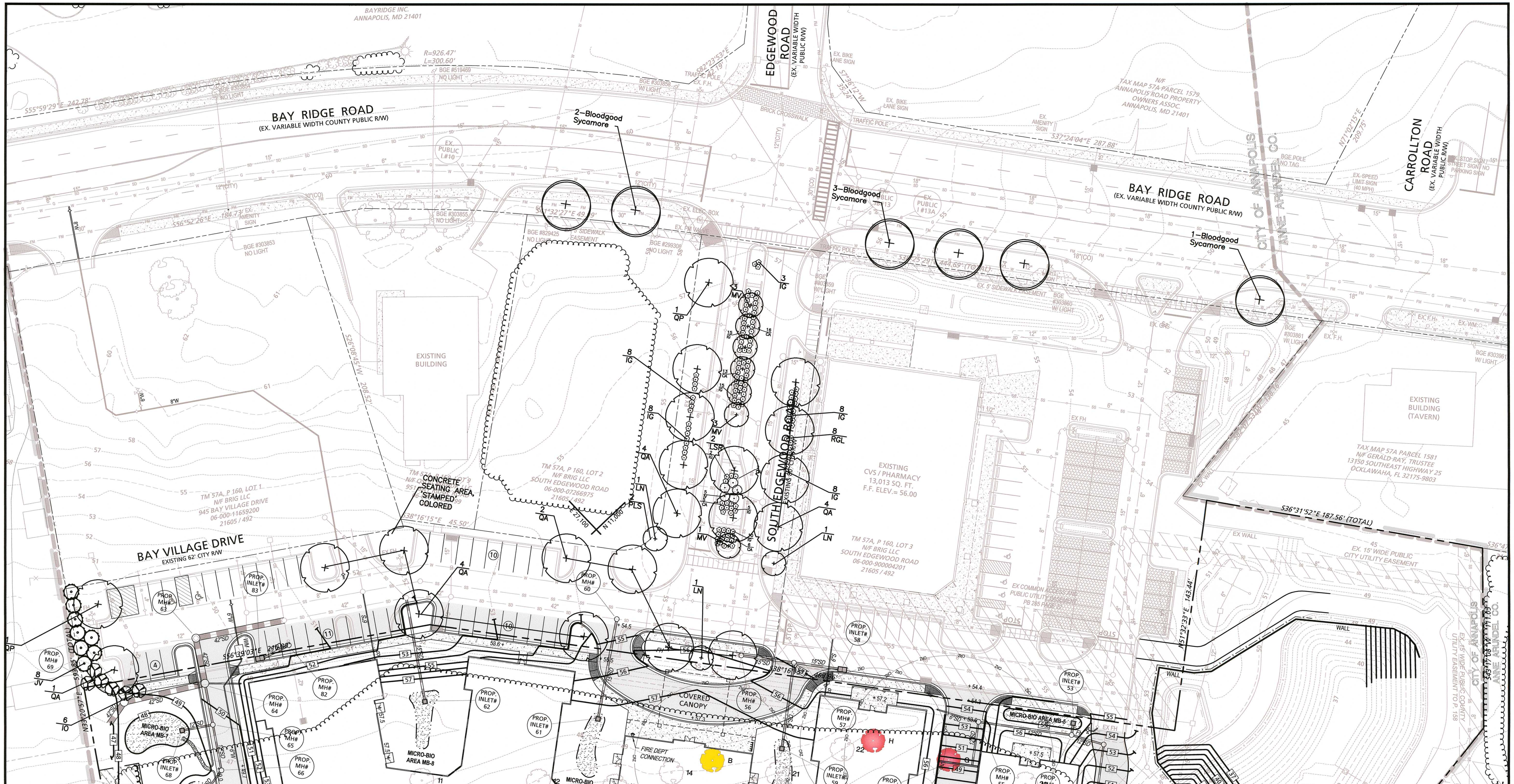

REFORESTATION - RIGHT-OF-WAY TREES

BAY RIDGE ROAD

SYM	Q'TY	BOTANICAL NAME	COMMON NAME	SIZE	WIDTH ft/SF perTREE*	TOTAL SF
N/A	6	Platanus x acerifolia 'Bloodgood'	Bloodgood Sycamore	2 ½ - 3"cal	40'/ 1240sf	7,440
					TOTAL	7,440sf

SOUTH EDGEWOOD ROAD

TREES

Q'Ty	SYM	BOTANICAL NAME	COMMON NAME	SIZE	WIDTH ft/SF per TREE*	TOTAL SF
IO	3	Ilex opaca	American Holly	2" cal./4-5' ht	15ft / 174sf See note1	522
LN	3	Lagerstroemia indica Natchez	Natchez Crape Myrtle	10-12' ht.	21ft / 331 See Note 2	993
LSR	2	Liquidamber styraciflua 'Rotundiloba'	Rotundiloba Sweetgum	2 1/2 - 3" cal.	30' / 697sf See note3	1,395
MV	7	Magnolia virginiana	Sweetbay Magnolia	2" cal./6-8' ht	20ft /310sf See Note 4	2,170
QA	12	Quercus alba	White Oak	2 1/2 - 3" cal.	40ft / 1,240sf See Note 5	14,880
QP	1	Quercus phellos	Willow Oak	2 1/2 - 3" cal.	30ft / 697sf	697
					TOTAL	20,657

* Based on width of canopy at 30years from ""STREET TREE FACT SHEETS"

SHRUBS RAIN GARDEN & WITHIN R.O.W.

Q'Ty	SYM	BOTANICAL NAME	COMMON NAME	SIZE	WIDTH ft/SF per SHRUB+	TOTAL SF
CA	41	Clethra alnifolia 'Rosea'	Pink Clethra	18-24" ht	4.5ft / 15sf	615
IG	47	Ilex glabra 'Shamrock'	Shamrock Inkberry	18-24" ht	4ft / 12sf	564
IV	5	Ilex verticillata 'Winter Red'	Winter Red Winterberry	24-30" ht.	6ft / 28sf	140
Q'Ty	SYM	BOTANICAL NAME	COMMON NAME	SIZE	WIDTH ft/SF per SHRUB+	TOTAL SF
IG	35	Ilex glabra 'Shamrock'	Shamrock Inkberry	18-24" ht	4ft / 12sf	420
PLS	5	Prunus laurocerasus 'Schipkaensis'	Skip Laurel	24-30" ht.	8ft / 50sf	250
RGL	16	Rhus 'Gro-low'	Gro-Low Sumac	18-24" ht	5ft / 19sf	304
					TOTAL	2,293

+Shrubs sizes are rated at 5+years based on "The Manual of Woody Landscape Plants" and "Native Trees, Shrubs and Vines for Urban and Rural America". As this is a landscape setting the shrub sizes are not based on full mature width due to spacing and probable pruning.

SOUTH VILLAGE DRIVE

TREES

Q'Ty	SYM	BOTANICAL NAME	COMMON NAME	SIZE PLANTED	SF / TREE*	TOTAL SF
IO	3	Ilex opaca	American Holly	2" cal./4-5' ht	15ft / 174sf See note1	522
JV	8	Juniperus virginiana	Red Cedar	2" cal./5' ht	18ft / 251 See note 6	2,008
LN	1	Lagerstroemia indica 'Natchez'	Natchez Crape Myrtle	10-12' ht.	21ft / 331 See Note 2	331
QA	5	Quercus alba	White Oak	2 1/2 - 3" cal.	40ft / 1,240sf See Note 5	6,200
QP	1	Quercus phellos	Willow Oak	2 1/2 - 3" cal.	30ft / 697sf	697
					TOTAL	9,758

* Based on width of canopy at 30years from ""STREET TREE FACT SHEETS"

Note 1: The "Facts Sheet" does not include Ilex opaca. The "Trees for Urban and Suburban Landscapes" rates I. opaca at 15 – 25ft width and "The Manual of Woody Landscape Plants" rates mature width as 18 – 40'. A Value of 15ft has been used for this setting and spacing.

Note 2: The "Facts Sheet" does not include Lagerstroemia indica. The "Trees for Urban and Suburban Landscapes" rates L. indica and it's hybrids at 15 – 25ft width and "The Manual of Woody Landscape Plants" rates width as 21' in 14 years. A Value of 21ft has been used.

Note 3: The "Facts Sheet" does not include this cultivar. The value for species was used.

Note 4: The "Facts Sheet" does not include Magnolia virginiana. The "Trees for Urban and Suburban Landscapes" rates M. virginiana and it's hybrids at 15 -25ft width and "The Manual of Woody Landscape Plants" rates width as10 – 20' in the north. A Value of 20ft has been used based on these sources and the experience of the landscape architect in this region.

Note 5: The "Facts Sheet" does not include Quercus alba. The "Trees for Urban and Suburban Landscapes" rates M. virginiana and it's hybrids at 60 -80ft width, "The Manual of Woody Landscape Plants" rates width as 50 – 80' and higher and "Native Trees, Shrubs and Vines for Urban and Rural America shows the width as 75 -100ft. A Value of 40ft for 30years has been used based on these sources and the experience of the landscape architect in this region.

Note 6: The "Facts Sheet" does not include Juniperus virginiana. The "Trees for Urban and Suburban Landscapes" rates J. virginiana at 8 -25ft width, "The Manual of Woody Landscape Plants" rates width as 8 – 20' and "Native Trees, Shrubs and Vines for Urban and Rural America shows the width as 35 -50ft. A Value of 18ft for 30years has been used based on these sources and the experience of the landscape architect in this region

PROPOSED TOTAL REFORESTATION (R/W TREES)= 40,148 SQ. FT. OR 0.92 ACRES ±

NOTES:
1. **REFER TO SHEET 1 FOR LEGEND.**

GRAPHIC SCALE
1 inch = 30 ft.

Wetland Studies and Solutions, Inc.® a DAVEY company

FOREST CONSERVATION PLAN
CERTIFIED BY:
Michael Klebasko 9-8-15
MICHAEL KLEBASKO DATE
WETLAND STUDIES AND SOLUTIONS, INC.
QUALIFIED PROFESSIONAL PER
(COMAR 08.19.06.01)

Revisions

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Terry Schuman — Date
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Date: SEPTEMBER, 2015
Job Number: 15-5208
Scale: 1"=30'
Drawn By: LS
Approved By: TS
Folder Reference: ASSISTED LIVING LOT 4 BAY VILLAGE, ANNAPOLIS

FOREST CONSERVATION PLAN

FOREST CONSERVATION PLANS
OF
LOT 4
AT BAY VILLAGE
TAX MAP 57A, GRID 14, PARCEL 160, LOT 4
979 BAY VILLAGE DRIVE
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F:\15-5208 Assisted Living Lot 4 Bay Village\Drawing Files\Forest Conservation Plans\15-5208 ASSLIVING-LOT4BV-FOREST CONSERV PLANS.dwg

SPECIMEN TREE LIST

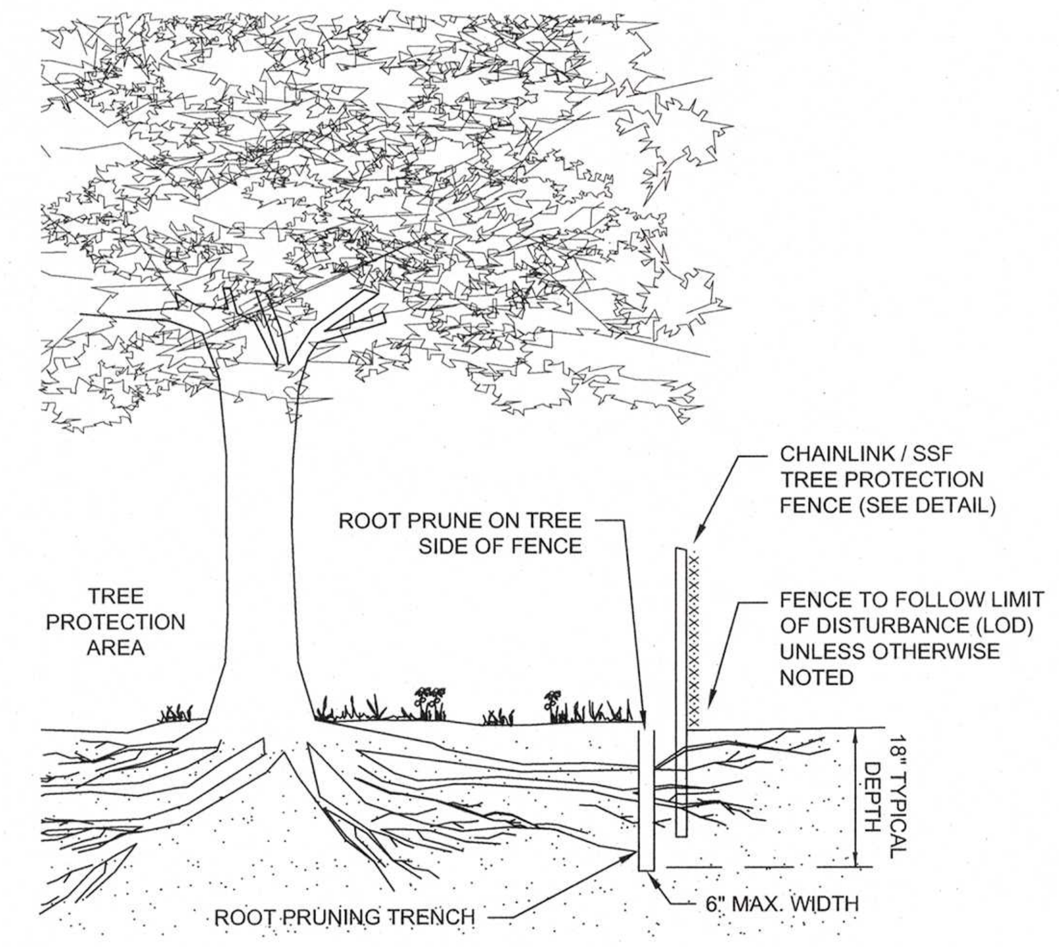
TREE #	COMMON NAME	SCIENTIFIC NAME	DBH INCHES	CONDITION	COMMENTS
* A	Yellow Poplar	*Liriodendron tulipifera*	34	Fair	Minor broken limbs, One-sided, Stressed, Small dead wood
* B	Yellow Poplar	*Liriodendron tulipifera*	32	Fair	Vine cover, Small dead wood, Included bark, Weak union, Stressed
C	Yellow Poplar	*Liriodendron tulipifera*	32	Good	Vine cover
D	Yellow Poplar	*Liriodendron tulipifera*	31	Fair	Broken limbs, Heavy vine cover, dead 6" twin included at base of trunk, Full crown,
E	Pin Oak	*Quercus palustris*	30	Good	
* F	Yellow Poplar	*Liriodendron tulipifera*	30	Fair	One-sided, Large dead wood
* G	Northern Red Oak	*Quercus rubra*	43	Very Poor	Broken scaffold branches, Vine cover, Declining health
* H	Yellow Poplar	*Liriodendron tulipifera*	30	Poor	Co-dominant @ 30' , Recent grading in root zone, Broken limbs, Vine cover, Included bark, Weak union, Narrow crown
* I	Yellow Poplar	*Liriodendron tulipifera*	32	Fair	Broken limbs, Vine cover
* J	Yellow Poplar	*Liriodendron tulipifera*	39	Fair	Co-dom @ 8', Included bark, Some broken limbs, Full crown
* K	Yellow Poplar	*Liriodendron tulipifera*	30	Fair	American holly growing out of base (included), Stressed, Small dead wood
L	Yellow Poplar	*Liriodendron tulipifera*	35	Fair	Minor root disturbance from grading, Broken limbs
M	Yellow Poplar	*Liriodendron tulipifera*	32	Fair	Co-dom with N, Included bark at union, Slight lean
N	Yellow Poplar	*Liriodendron tulipifera*	35	Fair	Co-dom with M, Included bark at union, Slight lean,

*** SPECIMEN TREES TO BE REMOVED PENDING VARIANCE REQUEST FILED SEPTEMBER, 2015**

LARGE TREE LIST

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH INCHES	CONDITION	COMMENTS
* 1	Yellow Poplar	*Liriodendron tulipifera*	26	Fair	Vine cover, Broken Scaffold Branches, Large dead wood, Stressed
* 2	Yellow Poplar	*Liriodendron tulipifera*	29	Fair	Vine cover, One-sided, Stressed
* 3	Yellow Poplar	*Liriodendron tulipifera*	27	Fair	One-sided, Large dead wood, Stressed
* 4	Yellow Poplar	*Liriodendron tulipifera*	24	Fair	Broken limbs, Main leader broken at top, Narrow crown, One-sided, Stressed, Poor form
* 5	Yellow Poplar	*Liriodendron tulipifera*	25	Fair	Vine cover, Slight lean, Unbalanced canopy, Large dead wood
6	Yellow Poplar	*Liriodendron tulipifera*	24	Fair	Vine cover, One-sided
7	Pin Oak	*Quercus palustris*	24	Fair	Offsite
* 8	Yellow Poplar	*Liriodendron tulipifera*	25	Fair	Co-dom with #9 at base, included bark, Broken limbs, Weak union, Stressed, Narrow crown, Stressed
* 9	Yellow Poplar	*Liriodendron tulipifera*	24	Fair	Co-dom with #8 at base, included bark, Broken limbs, Weak union, Narrow crown, Stressed
*10	Yellow Poplar	*Liriodendron tulipifera*	28	Fair	Full crown, Large dead wood
*11	Yellow Poplar	*Liriodendron tulipifera*	25	Fair	Unbalanced canopy, Small dead wood
*12	Yellow Poplar	*Liriodendron tulipifera*	27	Fair	Twin leader @20'- poor structure, Included bark
*13	Yellow Poplar	*Liriodendron tulipifera*	27	Fair	Multiple leaders split @30', poor structure, Vine cover, One-sided, Small dead wood
*14	Yellow Poplar	*Liriodendron tulipifera*	27	Fair	Narrow canopy, Vine cover, Broken limbs
*15	Yellow Poplar	*Liriodendron tulipifera*	24	Fair	Narrow canopy, Vine cover, Small dead wood
16	Yellow Poplar	*Liriodendron tulipifera*	24	Fair	Very narrow canopy, Small dead wood
17	Yellow Poplar	*Liriodendron tulipifera*	29	Fair	Narrow canopy, Vine cover, Small dead wood
18	Yellow Poplar	*Liriodendron tulipifera*	27	Fair	Split at 2' with smaller twin (23")
*19	Yellow Poplar	*Liriodendron tulipifera*	25	Fair	Poor structure, Broken limbs, Vine cover, Trunk scars
*20	Yellow Poplar	*Liriodendron tulipifera*	25	Fair	One-sided
*21	Yellow Poplar	*Liriodendron tulipifera*	26	Poor	Broken limbs, Heavy vine cover; Large dead wood, Narrow crown
*22	Yellow Poplar	*Liriodendron tulipifera*	24	Very Poor	3 co-dominant leaders @ base, Vine cover, Significant damage to trunk, Weak union, Included bark
*23	Sweetgum	*Liquidambar styraciflua*	27	Very Poor	Vine cover, Wire ingrown in trunk, Broken limbs, Crown dieback, Root zone disturbance
*24	Yellow Poplar	*Liriodendron tulipifera*	29	Fair	3 co-dominant leaders @base, Vine cover, Stressed, Included bark, Large dead wood
25	Yellow Poplar	*Liriodendron tulipifera*	28	Fair	One-sided, Large dead wood
*26	Chestnut Oak	*Quercus prinus*	29	Fair	Vine cover
*27	Yellow Poplar	*Liriodendron tulipifera*	27	Fair	Broken Scaffold Branches, Main leader broken at top
28	Yellow Poplar	*Liriodendron tulipifera*	29	Good	Full crown, Small dead wood
*29	Yellow Poplar	*Liriodendron tulipifera*	26	Fair	Narrow crown, Large dead wood, Stressed
30	Yellow Poplar	*Liriodendron tulipifera*	25	Fair	Broken limbs, Narrow crown
31	Yellow Poplar	*Liriodendron tulipifera*	25	Fair	Poor structure, co-dom leader with #32@2', Included bark, Weak union, Narrow crown
32	Yellow Poplar	*Liriodendron tulipifera*	26	Fair	Poor structure, co-dom leader with #31@2, Included bark, Weak union, Narrow crown'
33	Yellow Poplar	*Liriodendron tulipifera*	28	Fair	Broken limbs, Narrow canopy
34	Yellow Poplar	*Liriodendron tulipifera*	27	Good	
35	Yellow Poplar	*Liriodendron tulipifera*	25	Fair	One-sided, Narrow crown
36	Yellow Poplar	*Liriodendron tulipifera*	26	Fair	One-sided, Narrow crown
37	Yellow Poplar	*Liriodendron tulipifera*	24	Poor	Large cavity @base
38	Red Maple	*Acer rubrum*	29	Fair	Broken limbs, Recent root disturbance from grading, basal decay, Small dead wood
39	Yellow Poplar	*Liriodendron tulipifera*	28	Fair	Metal embedded in trunk at base, Vine cover
40	Yellow Poplar	*Liriodendron tulipifera*	24	Poor	Unbalanced canopy, Vine cover, Poor form
41	Yellow Poplar	*Liriodendron tulipifera*	28	Poor	Large cavity in trunk
42	Yellow Poplar	*Liriodendron tulipifera*	25	Good	Vine cover
43	Yellow Poplar	*Liriodendron tulipifera*	28	Fair	Broken central leader; Poor form
44	Yellow Poplar	*Liriodendron tulipifera*	25	Good	
45	Yellow Poplar	*Liriodendron tulipifera*	28	Fair	Broken limbs, Vine cover
46	Yellow Poplar	*Liriodendron tulipifera*	25	Fair	Broken limbs

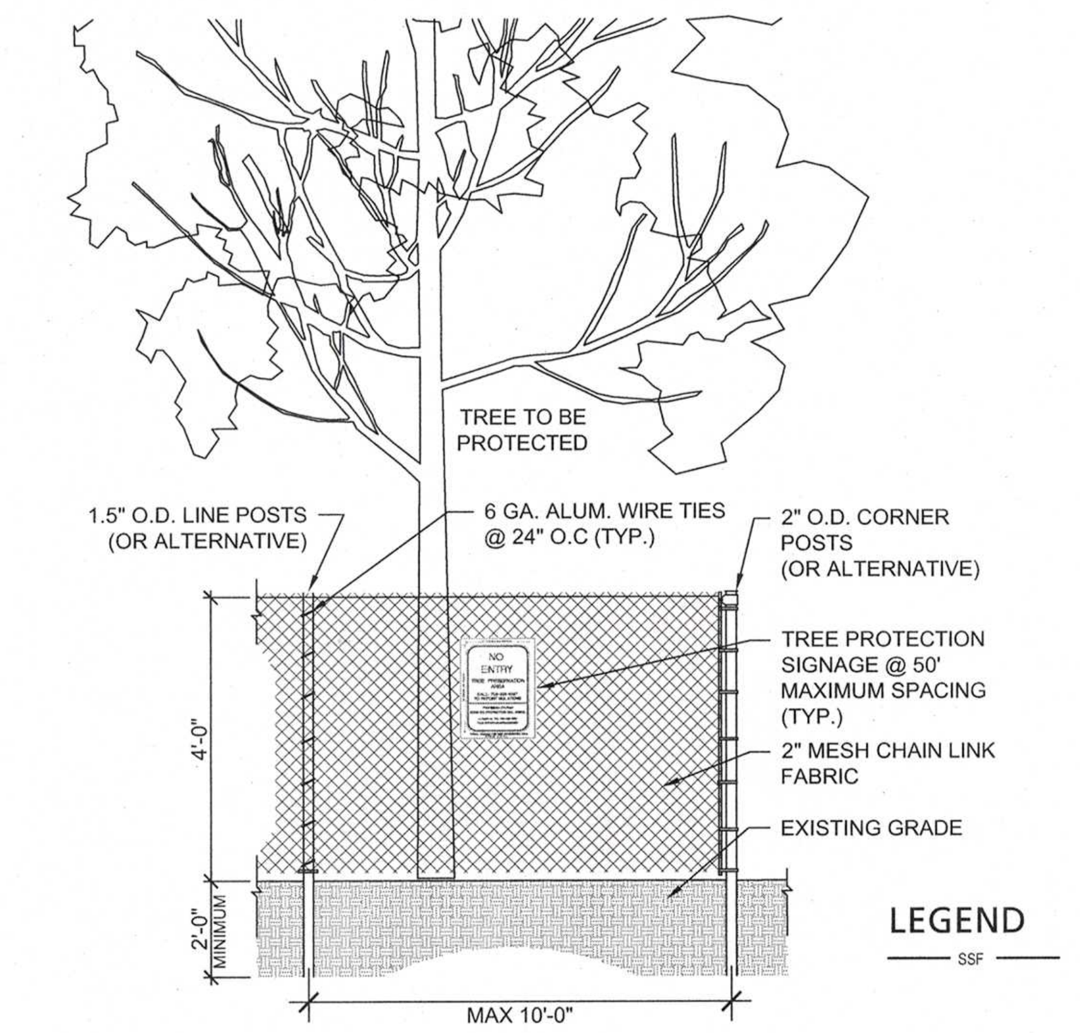
*** TREES TO BE REMOVED**



NOTES:
1. TREE PROTECTION AREA WILL BE DETERMINED AS PART OF THE PLAN REVIEW PROCESS. EXACT LOCATION, DEPTH AND METHODS OF ROOT PRUNING TO BE DETERMINED IN THE FIELD BY PROJECT ARBORIST.
2. EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCHING.
3. TRENCH SHOULD BE BACKFILLED IMMEDIATELY OR INCORPORATED WITH SILT FENCE INSTALLATION.
4. ROOTS SHOULD BE SEVERED BY TRENCHER, VIBRATORY PLOW OR APPROVED EQUIVALENT. ROOTS OVER 1.5" DIAMETER SHOULD BE CLEANLY CUT BY HAND. ROOT PRUNING ADJACENT TO SPECIMEN TREES MAY REQUIRE SOIL REMOVAL BY SUPERSONIC AIR TOOL TO MINIMIZE TREE AND ROOT IMPACTS.

TYPICAL ROOT PRUNING DETAIL

SCALE: NONE

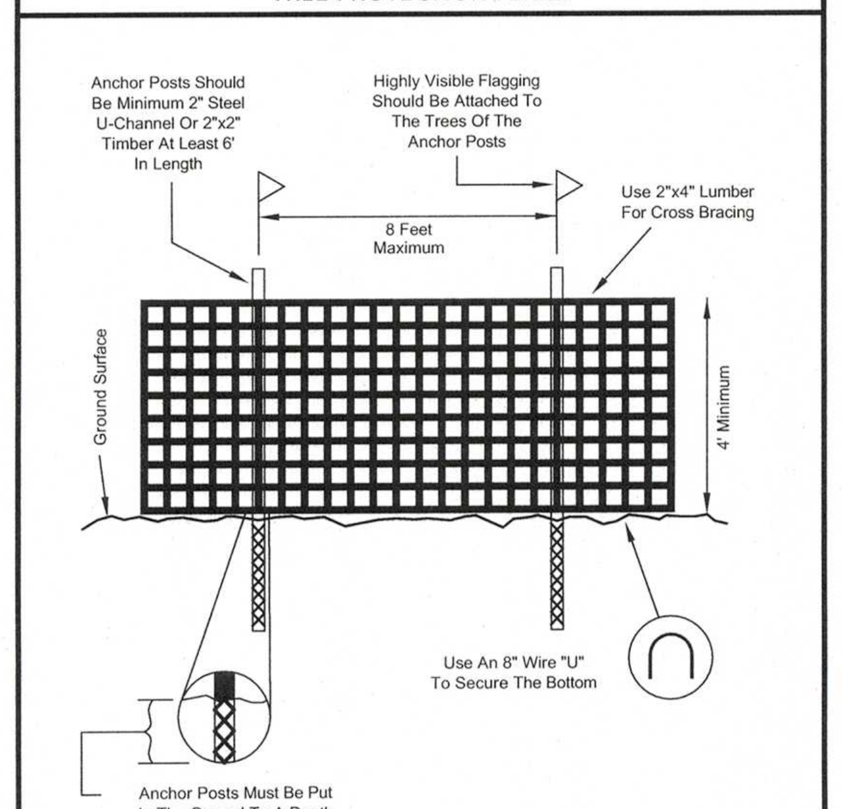


NOTES:
1. TREE PROTECTION FENCE SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION.
2. SUPER SILT FENCE MAY BE USED FOR TREE PROTECTION PROVIDED IT IS INSTALLED AND MAINTAINED AS A TREE PROTECTION MEASURE AND IS POSTED WITH TREE PROTECTION SIGNS AND INSTALLED IN THE ROOT PRUNE TRENCH OR INSTALLED WITH FILTER LOG.
3. TREE PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. REMOVE FENCE ONLY WITH APPROVAL FROM THE CITY'S ENVIRONMENTALIST AND AFTER ALL SITE WORK HAS BEEN COMPLETED.

TYPICAL CHAIN LINK TREE PROTECTION FENCE

SCALE: NONE

TREE PROTECTION FENCE



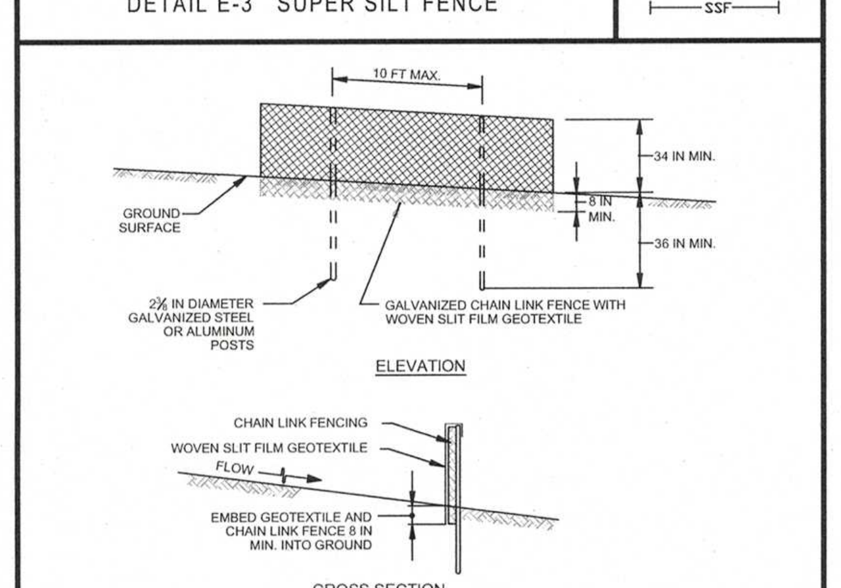
GENERAL NOTES
1. The boundaries of the limits of disturbance should be staked and flagged prior to erecting the protective device.
2. Anchor posts should be placed to avoid severing or damaging large tree roots.
3. Fencing material should be fastened securely to the anchor posts, cross bracing, and ground.

LEGEND

—— TPF —— TPF ——

DETAIL E-3 SUPER SILT FENCE

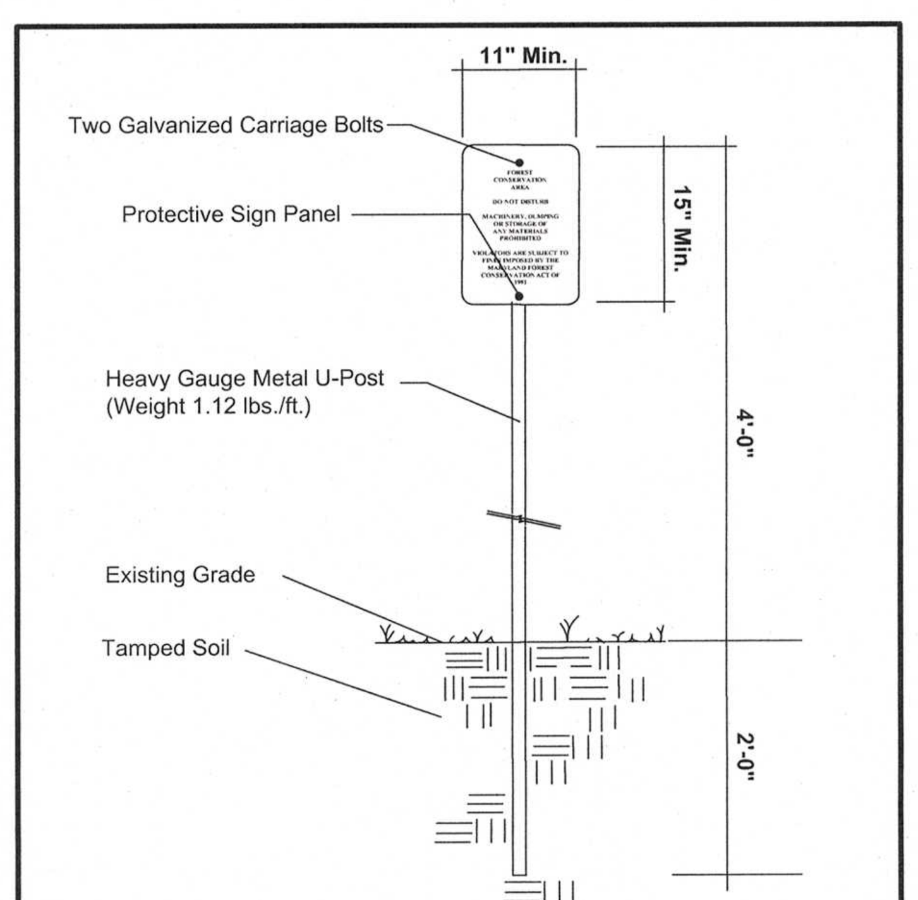
STANDARD SYMBOL —SSF—



CONSTRUCTION SPECIFICATIONS
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



NOTES:
1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
2. SIGNS TO BE PLACED APPROXIMATELY 50' APART. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

PROTECTIVE SIGNAGE DETAIL

NOT TO SCALE

TREE PRESERVATION SPECIFICATIONS

1. GENERAL
   - 1.1. ALL MEASURES WILL BE REVIEWED AFTER INSTALLATION AND APPROVED BY OWNER, CITY'S ENVIRONMENTALIST, AND CIVIL ENGINEER, AND CITY'S ENVIRONMENTALIST.
   - 1.2. REFER TO THE PLAN DRAWINGS, DETAILS, AND TREE PROTECTION ACTION KEY (TPAK) FOR ADDITIONAL INFORMATION.
   - 1.3. ALL TREE PRESERVATION MEASURES SHALL BE IMPLEMENTED BY A CERTIFIED IS A ARBORIST. IN MARYLAND, A LICENSED TREE EXPERT CREDENTIAL IS ALSO REQUIRED.
   - 1.4. ALL TREE PRESERVATION SUBSTITUTIONS OR ALTERNATIVE METHODS OR MATERIALS SHALL BE REVIEWED AND APPROVED BY THE CIVIL ENGINEER AND CITY'S ENVIRONMENTALIST.
   - 1.5. PRIOR TO THE COMMENCEMENT OF ANY SITE WORK OR DEMO WORK A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH THE CITY'S ENVIRONMENTALIST TO INCLUDE A SITE WALK. THE CONTRACTOR'S ARBORIST MUST ATTEND. ITEMS TO REVIEW INCLUDE TREES TO BE REMOVED, PLA CEMENT OF ROOT PRUNING, TREE PROTECTION FENCE, AND RELATED RETAINING WALLS, INFILTRATION AREAS, AND STAIRS.
   - 1.6. ALL TREE PROTECTION MEASURES MUST BE IN PLACE PRIOR TO COMMENCEMENT OF DEMOLITION, SITE CLEARING OR CONSTRUCTION AND MAINTAINED THROUGHOUT CONSTRUCTION. TREE PROTECTION MEASURES MAY ONLY BE REMOVED WITH THE CITY'S ENVIRONMENTALIST APPROVAL.
   - 1.7. REFER TO THE TREE PROTECTION ACTION KEY (TPAK) FOR SPECIFIC RECOMMENDATIONS FOR EACH TREE.
2. REMOVAL BY ARBORIST
   - 2.1. TREES DESIGNATED AS "REMOVAL BY ARBORIST" SHALL BE REMOVED SECTIONALLY BY HAND BY A QUALIFIED ARBORIST, TO MINIMIZE POTENTIAL FOR DAMAGE TO REMAINING TREES, ROOTS, AND STRUCTURES.
   - 2.2. CREWS SHALL BE DIRECTLY SUPERVISED BY A CERTIFIED ARBORIST / MD LTE.
   - 2.3. TRUCKS AND MECHANIZED EQUIPMENT SHALL NOT ENTER THE FENCED TREE PROTECTION AREAS.
   - 2.4. STUMP GRINDING SHALL BE WITH SMALL MACHINES SPECIFICALLY DESIGNED FOR THAT PURPOSE. NO STUMPS SHALL BE EXCAVATED EXCEPT WITHIN THE LOD.
3. TREE PROTECTION FENCE
   - 3.1. TYPICALLY, INSTALL AFTER ROOT PRUNING AND PRIOR TO CLEARING & GRADING.
   - 3.2. FENCE SHALL BE THE FOLLOWING: (SEE DETAIL)
     - 3.2.1. MINIMUM 4' HIGH CHAIN LINK FENCE FABRIC MOUNTED ON ROUND GALVANIZED STEEL PIPE LINE POSTS SPACED A MAXIMUM OF 10' ON CENTER. SUPERSILT FENCE IS ACCEPTABLE ALTERNATE WHEN PLACED IN THE ROOT PRUNE LINE. SPACE OR GAP FOR ACCESS BY ARBORIST FOR MAINTENANCE SHALL BE INCLUDED.
   - 3.3. TREE PROTECTION AREA SIGNS SHALL BE AFFIXED TO ALL TREE PROTECTION FENCE AT 30' SPACING AVERAGE. A MINIMUM OF ONE SIGN PER INDIVIDUAL SMALL TREE PROTECTION AREA. SIGNS SHALL BE BILINGUAL (ENGLISH AND SPANISH). SIGNS SHALL NOT BE AFFIXED DIRECTLY TO TREES. SEE DETAIL.
   - 3.4. IF NO ROOT PRUNING WILL BE DONE IN THE CRITICAL ROOT ZONES OF TREES IMPACTED BY THE PROPOSED WORK THEN FILTER LOGS (12" DIANMETER MINIMUM) AN D SILT FENCE OR TREE PROTECTION FENCE SHALL BE INSTALLED. SILT FENCE ADJACENT TO RAM OR RPM OR FOR OTHER TECHNICAL REASON SHALL BE COORDINATED FOR INSTALLATION AS ABOVE TO ENHANCE PROTECTION AND AVOID UNNECESSARY ROOT CUTS BY SILT FENCE INSTALLATION.
   - 3.5. TREE FENCE MAY BE REMOVED ONLY AFTER ALL CONSTRUCTION AND FINAL LANDSCAPING IS COMPLETE AND WITH THE CITY ENVIRONMENTALIST'S APPROVAL.
4. ROOT PRUNE
   - 4.1. THE EXACT LOCATION AND DEPTH WILL BE DETERMINED PRIOR TO OR DURING THE PRE-CONSTRUCTION MEETING. MECHANICAL EQUIPMENT SELECTION MAY INCLUDE A TRACK MOUNTED PAVEMENT SAW, CHAIN DRIVEN TRENCHER, OR OTHER DEVICE CAPABLE OF GENERALLY CLEAN CUTS FOR ROOTS LESS THAN ONE INCH DIAMETER. FOR LARGE SPECIMEN TREES A SSAT (SUPERSONC AIRTOOL) IS REQUIRED. SPECIFIC EQUIPMENT & METHODS WILL BE APPROVED BY THE CITY ENVIRONMENTALIST BASED UPON DEPTH & TREE IMPACT. (SEE DETAIL)
   - 4.2. HAND PRUNE ROOTS OVER 1" DIAMETER WITHIN CRZS OF SIGNIFICANT TREES. STEEP SLOPES, DEEP EXCAVATIONS AND PAVEMENT/CURB REMOVAL WILL BE REVIEWED WHEN OPEN FOR HAND ROOT PRUNING DURING CONSTRUCTION.
   - 4.3. COORDINATE WITH SILT FENCE INSTALLATION TO MINIMIZE UNNECESSARY ROOT DAMAGE.
   - 4.4. ROOT PRUNING SHALL BE PERFORMED BY A CERTIFIED ARBORIST / MD LTE.
   - 4.5. ROOT PRUNE TRENCH SHALL BE BACKFILLED AT THE END OF THE WORK DAY AND MARKED WITH WOOD STAKES OR WIRE FLAGS AT A MINIUM EVERY 25' FOR LATER REFERENCE.
5. WOOD CHIP MULCH
   - 5.1. INSTALL MULCH BED RINGS FOR DESIGNATED SIGNIFICANT TREES OR PROVIDE CONTINUOUS MULCH STRIP 10' TO 15' WIDE ALONG LOD FOR A LENGTH OF ONE FOOT FOR EACH INCH OF TRUNK DIAMETER.
   - 5.2. FOR MULCH RINGS THE SIZE SHALL BE GENERALLY ONE FOOT OF DIAMETER FOR EVERY INCH OF TRUNK DIAMETER. THEREFORE A 30" DIAMETER TREE EQUALS A 30' MULCH RING. ADJUST FOR EXISTING OR PROPOSED WALKS, CURBS, ETC..
   - 5.3. MULCH SHALL BE INSTALLED TO A DEPTH OF 3" OR AS DESIGNATED AT THE PRE-CONSTRUCTION MEETING.
   - 5.4. MULCH SHALL BE DOUBLE GROUND SHREDDED WHOLE TREE HARDWOOD, AGED FOR AT LEAST 6 MONTHS. INSUFFICIENTLY OR IMPROPERLY AGED MULCH CONTAINING HIGH BACTERIAL COUNTS OR HIGH LEVELS OF BARK OR OTHER MATERIALS RESISTANT TO DECOMPOSITION SHALL NOT BE USED. MULCH SHALL NOT CONTACT TRUNK OF TREES.
   - 5.5. MULCH SOURCES SHALL NOT INCLUDE WOOD PALLETS, WALNUT TREES, OR NON NATIVE INVASIVE SPECIES.
   - 5.6. EDGING IS NEITHER NECESSARY NOR DESIRABLE FOR THIS OPERATION. COORDINATE WITH FINAL LANDSCAPE PLAN FOR BED CONFIGURATIONS.
6. CONSTRUCTION MONITORING/INSPECTIONS
   - 6.1. A CERTIFIED ARBORIST SHALL MONITOR EACH PHASE OF SITE WORK ADJACENT TO THE TREES TO INCLUDE THE FOLLOWING: PRE-CONSTRUCTION MEETING, TREE REMOVALS, INSTALLATION OF TREE PROTECTION DEVICES, DEMOLITION, EXCAVATION, RETAINING WALL CONSTRUCTION, STAIR CONSTRUCTION, SIDEWALK INSTALLATIONS, FINAL GRADING, AND LANDSCAPE. PROVIDE QUARTERLY REPORTS TO THE OWNER, CITY'S ENVIRONMENTALIST AND CIVIL ENGINEER TO INCLUDE THE ABOVE WORK STATUS. QUARTERLY REPORTS SHALL DOCUMENT CONDITION OF TREE PROTECTION DEVICES, GENERAL WEATHER CONDITIONS, AND PROVIDE RECOMMENDATIONS FOR MAINTENANCE AND/OR ADDITIONAL CARE.
7. MISCELLANEOUS TREE PROTECTION REQUIREMENTS
   - 7.1. NO TOXIC MATERIALS SHALL BE STORED WITHIN 100' OF TREE PROTECTION AREAS.
   - 7.2. ALL WORK IN OR NEAR TREE PROTECTION AREAS SHALL BE PERFORMED IN A MANNER TO MINIMIZE DAMAGE TO TREES, SHRUBS, GROUND COVER, SOIL AND ROOT SYSTEMS.
   - 7.3. MECHANIZED EQUIPMENT SHALL NOT BE PERMITTED TO ENTER ANY TREE PROTECTION AREAS.
8. CROWN PRUNING & SUPPORT CABLES
   - 8.1. CROWN PRUNING SHALL BE CLEANING PRUNING AND/OR RESTORATION PRUNING AND SHALL BE IN CONFORMANCE WITH CURRENT ANSI A300 STANDARDS AND ISA BEST MANAGEMENT PRACTICES.
   - 8.2. PRUNING SHALL REMOVE ONLY DEAD, DYING, DAMAGED OR BROKEN BRANCHES GREATER THAN 1" IN DIAMETER. PRUNING OF SMALL TREES MAY INCLUDE REMOVAL OF LIMBS TO IMPROVE STRUCTURE.
   - 8.3. FOLIAGE REMOVAL SHALL NOT BE MORE THAN 25% OF THE TOTAL LIVE CANOPY VOLUME OF ANY TREE IN ANY ONE SEASON. PRUNING SHALL NOT REMOVE INTERIOR BRANCHING EXCEPT AS OTHERWISE STATED.
   - 8.4. PRUNING FOR SPECIFIC CLEARANCE (FOR CONSTRUCTION ACCESS OR PROPOSED IMPROVEMENTS) SHALL BE REVIEWED AND APPROVED BY THE OWNER AND CITY'S ENVIRONMENTALIST.
   - 8.5. LIMB OR TRUNK SUPPORT CABLES SHALL BE INSTALLED IN CONFORMANCE WITH CURRENT ANSI A300 STANDARDS AND ISA BEST MANAGEMENT PRACTICES.
9. SOIL CARE/ FERTILIZATION
   - 9.1. THE PURPOSE OF THESE TREATMENTS ARE TO INCREASE ROOTING CAPACITY FOR TREES WITH DISTURBANCES TO THE CRZS. TREATMENTS TO THE TREE PROTECTION AREAS FOR SPECIFIED TREES (SEE TPAK) SHALL BE BASED ON THE RESULTS OF THE SOIL ANALYSIS. FERTILIZATION SHALL BE CONSISTENT WITH THE RECOMMENDATIONS OF THE ANSI A-300 (PART 2) TREE, SHRUB, AND OTHER WOODY PLANT MAINTENANCE - STANDARD PRACTICES (FERTILIZATION) 2004.
   - 9.2. APPLICATION RATES SHALL NOT EXCEED A RATE OF 1.125 POUND OF ACTUAL NITROGEN PER 1,000 SQUARE FEET ANNUALLY. ADDITIONAL RECOMMENDED SOIL AMENDMENTS MAY INCLUDE MYCORRHIZA FUNGI, HUMIC ACIDS, SOLUBLE SEAWEED EXTRACTS AND OTHER SOIL BIOLOGICAL INOCULATES.
   - 9.3. ACCEPTABLE PRODUCTS MAY CONTAIN ONE OR MORE OF THE FOLLOWING: DAVEY ARBORGREEN PRO, ROOTS PRODUCTS, BIO-PLEX, OR EQUIVALENT.
10. TREE CONDITION MONITORING INSPECTIONS
    - 10.1. CONTRACT ARBORIST SHALL PROVIDE MONITORING OF THE HEALTH AND CONDITION OF RETAINED TREES IN TREE PROTECTION AREAS, AND TREATMENT OF DETRIMENTAL CONDITIONS (INSECTS, DISEASES, NUTRIENT DEFICIENCIES, SOIL MOISTURE, ETC.), AS THEY OCCUR, OR AS APPROPRIATE FOR EFFECTIVE MANAGEMENT.
    - 10.2. INSPECTIONS SHALL BE PERFORMED AT LEAST MONTHLY DURING THE GROWING SEASON, BEGINNING PRIOR TO CONSTRUCTION AND CONTINUING THROUGHOUT CONSTRUCTION AND FOR AT LEAST ONE YEAR SUBSEQUENT TO COMPLETION OF CONSTRUCTION ACTIVITIES.
    - 10.3. A WRITTEN SUMMARY REPORT INCLUDING SPECIFIC TREATMENTS MADE AND RECOMMENDATIONS FOR ADDITIONAL TREATMENTS SHALL BE PROVIDED TO THE OWNER, CITY'S ENVIRONMENTALIST, AND PROJECT ARBORIST SUBSEQUENT TO EACH INSPECTION.
11. TREE GROWTH REGULATOR (TGR)
    - 11.1. PACLOBUTRAZOL SOIL APPLIED TREE GROWTH REGULATOR (CAMBISTAT® OR EQUIVALENT) SHALL BE APPLIED TO INDICATED TREES. APPLICATIONS SHALL FOLLOW MANUFACTURER'S LABEL AND APPLICABLE LAWS.
    - 11.2. TGR REDUCES CANOPY GROWTH WHICH CAN INCREASE FIBROUS ROOT SYSTEM GROWTH OVER 2-3 YEARS. THIS CAN INCREASE TOLERANCE TO DROUGHT STRESS AND IMPROVE ABSORPTION OF NUTRIENTS AND MOISTURE DURING THE STRESS RECOVERY PERIOD.

TREE PRESERVATION SPECIFICATIONS CONTINUED

12. SUPPLEMENTAL WATER

    THIS ACTION IS FOR DESIGNATED TREES OF SIGNIFICANCE DURING SEASONAL DROUGHT TIMES OF PROJECT CONSTRUCTION. BASED UPON THE NUMBER AND SIZE OF TREES VARIOUS STRATEGIES CAN BE CONSIDERED TO MAINTAIN ADEQUATE SOIL MOISTURE DURING THESE TIMES. THESE STRATEGIES MAY INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING AS APPROVED BY THE CITY'S ENVIRONMENTALIST AND CIVIL ENGINEER:

    HOSE BIB CONNECTION, BATTERY POWERED TIMER AND DRIP IRRIGATION HOSE / TUBING;

    WATER TANK TRUNK AND HAND APPLIED AS DIRECTED;

    TEMPORARY ABOVE GRADE POLY TANK WITH BATTERY POWERED TIMERS FOR DRIP OR SOAKER HOSES AT EACH TPA.

    30-50 GALLON WATERING CANS WITH 6-8 DRILLED HOLES IN BOTTOM TO ALLOW SLOW SEEPING OF WATER; SPACING AND ROTATION TO REACH DESIRED GALLONS. EQUIVALENT MEANS OF EFFECTIVELY WATERING TREES AS APPROVED BY CIVIL ENGINEER.

    A PRESCRIPTION FOR THE NUMBER OF GALLONS AND STRATEGY FOR WATERING DESIGNATED TREES WILL BE DEVELOPED. LARGE MATURE TREES WITH IMPACTS TO ROOT SYSTEMS REQUIRE AS MUCH AS 100- 250 GALLONS PER WEEK DURING 90 DEGREE DAYS DURING SUMMER DROUGHT TIMES.

    PERIODIC INSPECTIONS BY AN ISA CERTIFIED ARBORIST AT THIS TIME ARE CRITICAL. DEPTH OF MOISTURE IN SOILS SHALL BE DETERMINED BY SOIL SAMPLE TUBE OR OTHER EXPLORATORY MEANS.

    MINIMUM WATERING SHALL BE CONSIDERED TO BE 6 APPLICATIONS PER GROWING SEASON TYPICALLY JULY THRU OCTOBER WITH THE EXACT TIMING AND DURATION TO BE DETERMINED BY THE ISA ARBORIST IN CONJUNCTION WITH THE CITY'S ENVIRONMENTALIST AND CIVIL ENGINEER. ADDITIONAL UNIT COSTS PER WATERING DESIGNATED TREES AT PRESCRIBED RATES ONE TIME.
13. TREE TRUNK PROTECTION WRAP
    - 13.1. TRUNKS OF TREES IN CLOSE PROXIMITY TO CONSTRUCTION SHALL BE PROTECTED WITH A SINGLE WRAP OF GEOCOMPOSITE. GEOCOMPOSITE SHALL BE DOUBLE SIDED, GEONET CORE WITH NON-WOVEN COVERING (SUCH AS TENAX TENDRAIN 770/2) OR EQUIVALENT.
    - 13.2. WRAP SHALL BE NOT LESS THAN 10' HIGH ON TRUNK OR UP TO THE LOWEST LIMB (WHICHEVER IS LESS). EXPOSED ROOT FLARE SHALL ALSO BE FULLY COVERED.
    - 13.3. WRAP SHALL BE TIED WITH ROPE OR WIRE. TIE MATERIAL SHALL NOT CONTACT TRUNK.
    - 13.4. WRAP SHALL BE REMOVED PROMPTLY AFTER CONSTRUCTION.
14. CONSTRUCTION STRATEGIES FOR TREE PROTECTION
    - 14.1. CONSTRUCTION STAGING, STOCKPILING EQUIPMENT STORAGE, ETC. SHALL BE LIMITED TO AREAS OF EXISTING PAVEMENT AND AREAS WITHIN THE LOD EXCEPT AS OTHERWISE NOTED.
    - 14.2. CONSTRUCTION EQUIPMENT ACCESS BETWEEN VARIOUS WORK AREAS SHALL REMAIN ON EXISTING PAVEMENT/IMPROVED SURFACES TO THE GREATEST EXTENT POSSIBLE. WHERE THIS IS NOT POSSIBLE AND WITHIN THE CRITICAL ROOT ZONE (CRZ) OF ANY TREE TO REMAIN, ACCESS SHALL BE MADE REVIEWED AND APPROVED BY THE CITY'S ENVIROMENTALIST AND CIVIL ENGINEER ONLY UPON ROOT PROTECTION MATTING (RPM); (SEE DETAIL) OR APPROVED ALTERNATIVE. CONTRACTOR TO DETERMINE ACCESS NEEDS AND COORDINATE RPM INSTALLATION WITH THE CONTRACT ARBORIST AT THE PRE-CONSTRUCTION MEETING OR BEFORE.
    - 14.3. PROPOSED LANDSCAPE PLANTINGS OUTSIDE THE LOD SHALL BE INSTALLED BY HAND. MECHANIZED EQUIPMENT SHALL NOT BE USED OUTSIDE THE LOD OR OFF OF EXISTING PAVED AREAS TO EXCAVATE FOR PLANTINGS OR FOR STAGING PLANT MATERIAL.
    - 14.4. COORDINATE PLANTING LOCATIONS WITHIN CRZS WITH THE CITY'S ENVIRONMENTALIST AND CONTRACT ARBORIST TO AVOID UNNECESSARY ROOT DAMAGE. PLANTING PITS WITHIN CRZS SHOULD BE DUG BY THE ARBORIST WITH SSAT TO AVOID SIGNIFICANT IMPACT. ROOTS GREATER THAN 1.5" SHOULD NOT BE CUT.

TREE PRESERVATION AND PROTECTION NOTES

1. CONTACT THE CITY OF ANNAPOLIS DNEP REPRESENTATIVE 410-263-7949 PRIOR TO THE COMMENCEMENT OF TREE PRESERVATION, FOR A PRE-CONSTRUCTION MEETING.
2. INSTALL TREE PRESERVATION FENCE AS SHOWN.
3. ROOT PRUNE TO DEPTH OF 24" ALONG EDGE OF TREE PRESERVATION AREAS 2' INSIDE OF THE LINE WHERE PROPOSED GRADING WILL CREATE A LOWER FINISHED GRADE THAN EXISTING GRADE. COVER ANY EXPOSED ROOT ENDS IMMEDIATELY WITH WET BURLAP AND KEEP MOIST UNTIL GRADING OPERATIONS HAVE COVERED THESE ROOT ENDS. FILL ROOT PRUNE TRENCH WITH SOIL. SEE DETAIL THIS SHEET.
4. TREE PRESERVATION AREAS (SEE PLAN). APPLY "IRONROOTS" BIOSTIMULANT MANUFACTURED BY ROOTS, INC. OR EQUIVALENT ONE TIME PER MANUFACTURES RECOMMENDATIONS OVER ENTIRE TREE PRESERVATION AREA. INSTALL A 1" DEPTH OF "LEAF-GRO" OR EQUIVALENT AGED HUMUS/COMPOST PRODUCT OVER ENTIRE TREE PRESERVATION AREA. INSTALL A 3-4" DEPTH OF AGED HARDWOOD MULCH ON WOVEN POLYPROPYLENE FABRIC OVER THE ENTIRE TREE PRESERVATION AREA. IF ON-SITE WOOD CHIPS OR NON-AGED MULCH IS USED, ALSO APPLY FERTILIZER AT THE RATE OF 10 LBS NITROGEN PER1000SF OVER MULCH. DEEPLY WATER THE ENTIRE TREE PRESERVATION AREA FOR A MINIMUM OF FOUR HOURS OR UNTIL THE SOIL REACHES FIELD SATURATION.
5. INSTALL DESIGNATED TYPE OF TREE PROTECTION FENCE PRIOR TO SITE DEMOLITION AND GRADING OPERATIONS. FENCE SHALL REMAIN IN PLACE THROUGHOUT PROJECT UNTIL DATE OF COMPLETION AND ACCEPTANCE.
6. ADDITIONAL SILT FENCE SHALL BE INSTALLED ON-SITE IF NECESSARY TO PREVENT THE FLOW AND DISPOSITION OF SILT OVER TREE PROTECTION AREA. WATERING SHALL CONTINUE THROUGHOUT CONSTRUCTION OPERATIONS DURING DROUGHT PERIODS TO PROVIDE THE EQUIVALENT OF 1" DEPTH RAINFALL PER WEEK DURING THE ACTIVE GROWING SEASON AND 1" DEPTH PER MONTH DURING THE DORMANT SEASON IF SOIL IS NOT FROZEN.
7. AT THE TIME OF THE COMPLETION TREE PROTECTION FENCE MAY BE REMOVED. THIS WORK SHALL BE DONE BY HAND. NO MECHANICAL EQUIPMENT MAY BE USED IN TREE PROTECTION AREAS.

TREE PRESERVATION NOTES

1. ALL EXISTING TREES AND SHRUBS WITHIN LIMIT OF DISTURBANCE SHALL BE REMOVED AND STOCKPILED EXCEPT AS NOTED.
2. STOCKPILE AND DRAINAGE SWALE LOCATIONS MAY BE FIELD ADJUSTED TO ALLOW FOR TREE PRESERVATION AS NECESSARY.
3. NO GRADING, TRENCHING, OR EQUIPMENT STORAGE SHALL TAKE PLACE WITHIN ANY TREE PRESERVATION AREA.
4. ANY BRANCHES WITHIN SEVEN FOOT VERTICAL CLEARANCE OF PEDESTRIAN AREAS, OR ANY BRANCHES THAT PROVIDE A HAZARDOUS CONDITION SHALL BE PRUNED BY A CERTIFIED ARBORIST.
5. SEE THIS SHEET FOR TREE PRESERVATION DETAILS.
6. ALL TREE PROTECTION AND PRESERVATION ACTIVITIES SHALL BE COMPLETED PRIOR TO ANY DEMOLITION, CONSTRUCTION OR GRADING ACTIVITIES.
7. ALL TREE PROTECTION AND PRESERVATION ACTIVITIES SHALL BE COMPLETED BY A CERTIFIED TREE CARE PROFESSIONAL.

Wetland Studies and Solutions, Inc.® a DAVEY company

FOREST CONSERVATION PLAN CERTIFIED BY:
Michael Klebasko 9-8-15
MICHAEL KLEBASKO DATE
WETLAND STUDIES AND SOLUTIONS, INC.
QUALIFIED PROFESSIONAL PER
(COMAR 08.19.06.01)

Revisions

Rev. #	By	Date	Description

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

Terry Schuman — Date
19593 — 3/31/16
License No. — Expiration Date

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www.bayengineering.com

Date: SEPTEMBER, 2015
Job Number: 15-5208
Scale: AS SHOWN
Drawn By: LS
Approved By: TS
Folder Reference: ASSISTED LIVING LOT 4 BAY VILLAGE, ANNAPOLIS

FOREST CONSERVATION NOTES AND DETAILS

FOREST CONSERVATION PLANS OF
LOT 4
AT BAY VILLAGE
TAX MAP 57A, GRID 14, PARCEL 160, LOT 4
979 BAY VILLAGE DRIVE
CITY OF ANNAPOLIS, MARYLAND 21403
SIXTH DISTRICT ANNE ARUNDEL COUNTY ZONED R1 / PM2

PLOTTED: Sep 06 , 2015 - 12:47pm
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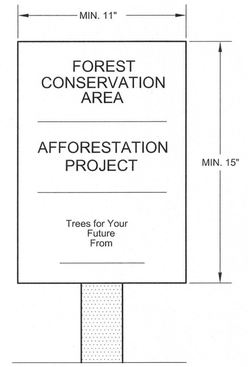
F:\15-5208 Assisted Living Lot 4 Bay Village\Drawing Files\Forest Conservation Plans\15-5208 ASSLIVING-LOT4BV-FOREST CONSERV PLANS.dwg

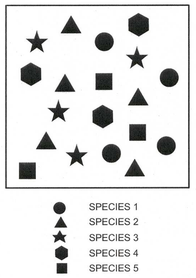


AFFORESTATION AREA SIGN NOTES

1. THE SIGNS NOTIFY CONSTRUCTION WORKERS AND FUTURE RESIDENTS OF THE NEWLY PLANTED MATERIAL, IMPROVING THE TREE'S SURVIVAL RATES.
2. SIGNS MAY BE ADAPTED BY RESIDENTS FOR IDENTIFICATION OF FOREST RETENTION AREAS IN LONG TERM.

AFFORESTATION AREA SIGN

SCALE: NONE



RANDOM PLANTING DISTRIBUTION DETAIL

SCALE: NONE

REFORESTATION PLANTING NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UTILITY COMPANIES, UTILITY CONTRACTORS AND "MISS UTILITY" A MINIMUM OF 48 HOURS PRIOR TO BEGINNING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO UTILITIES DUE TO NON-COORDINATED WORK. THE CONTRACTOR MAY MAKE MINOR ADJUSTMENTS IN SPACING AND LOCATION OF PLANT MATERIAL TO AVOID CONFLICTS WITH UTILITIES.
2. PLANTS, RELATED MATERIAL, AND OPERATIONS SHALL MEET THE DETAILED DESCRIPTION AS GIVEN ON THE PLANS AND AS DESCRIBED HEREIN.
3. PLANT MATERIAL, UNLESS OTHERWISE SPECIFIED, SHALL BE NURSERY GROWN, UNIFORMLY BRANCHED AND HAVE A VIGOROUS ROOT SYSTEM. PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS PLANTS FREE FROM DEFECTS, DECAY, DISFIGURING ROOTS, SUNSCALD INJURIES, ABRASIONS OF THE BARK, PLANT DISEASE, INSECT PEST EGGS, BOXERS, INFESTATIONS OR OBJECTIONABLE DISFIGUREMENTS. PLANT MATERIAL THAT IS WEAK OR WHICH HAS BEEN CUT BACK FROM LARGER GRADES TO MEET SPECIFIED REQUIREMENTS WILL BE REJECTED. TREES WITH FORKED LEADERS WILL NOT BE ACCEPTED. PLANTS SHALL BE FRESHLY DUG; NO HEELED-IN PLANTS OR PLANTS FROM COLD STORAGE WILL BE ACCEPTED.
4. UNLESS OTHERWISE SPECIFIED, PLANT MATERIAL SHALL CONFORM TO "AMERICAN STANDARD FOR NURSERY STOCK" ANSI Z60.1-2004, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INCLUDING ALL ADDENDA.
5. UNLESS OTHERWISE SPECIFIED, GENERAL CONDITIONS, PLANTING OPERATIONS, DETAILS AND PLANTING SPECIFICATIONS SHALL CONFORM TO "LANDSCAPE SPECIFICATION GUIDELINES", (HEREINAFTER "LANDSCAPE GUIDELINES") APPROVED BY THE LANSCAAPE CONTRACTORS ASSOCIATION OF METROPOLITAN WASHINGTON AND THE POTOMAC CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, LATEST EDITION, INCLUDING ALL ADDENDA.
6. THE CONTRACTOR WILL BE REQUIRED TO GUARANTEE PLANT MATERIAL FOR A PERIOD OF TWO YEARS AFTER DATE OF ACCEPTANCE.
7. AFTER THE FIRST YEAR OF PLANTING A SOIL TEST SHOULD BE MADE AND A FERTILIZATION PROGRAM DETERMINED. CONTRACTOR'S ATTENTION IS DIRECTED TO THE "LANDSCAPE GUIDELINES" FOR FERTILIZING SPECIFICATIONS.
8. TO LESSEN THE CHANCE OF LOSS THE TREES SHOULD BE CHECKED FROM TIME TO TIME TO INSURE THAT THEY ARE RECEIVING SUFFICIENT WATER.
9. THE LOCATION AND ORIENTATION OF ALL PLANT MATERIAL SHALL BE RANDOMLY PLANTED IN DESIGNATED REFORESTATION AREAS BY THE LANDSCAPE CONTRACTOR AND SHALL BE APPROVED IN THE FIELD BY THE OFFICE OF PLANNING AND ZONING ENVIRONMENTAL REVIEWER ONE WEEK PRIOR PLANTING. THEY CAN BE CONTACTED AT 410-222-7485. CONTRACTOR SHALL BE RESPONSIBLE FOR MOVING ANY PLANT MATERIAL INSTALLED WITHOUT APPROVAL.
10. MOWING AND APPLYING HERBICIDES TO THE REFORESTATION AREA IS PROHIBITED AT ANY AND ALL STAGES OF THE PLANTING PROCESS IN ORDER TO ENCOURAGE THE EXISTING SAPLINGS TO GROW.
11. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING PLANT MATERIAL IN THE PROPER PLANTING SEASON FOR EACH PLANT TYPE.
12. PLANTING MIX SHALL BE AS FOLLOWS: DECIDUOUS PLANTS - TWO PARTS TOPSOIL, ONE PART WELL-ROTTED COW MANURE. ADD 3 LBS. OF STANDARD FERTILIZER PER CUBIC YARD OF PLANTING MIX. EVERGREEN PLANTS - TWO PARTS TOPSOIL, ONE PART HUMUS OR OTHER APPROVED ORGANIC MATERIAL. ADD 3 LBS. OF EVERGREEN (ACIDIC) FERTILIZER PER CUBIC YARD OF PLANTING MIX. TOPSOIL SHALL CONFORM TO THE LANDSCAPE GUIDELINES.
13. THIS PLAN IS INTENDED FOR REFORESTATION USE ONLY. SEE OTHER PLAN SHEETS FOR MORE INFORMATION ON GRADING, SEDIMENT CONTROL, UTILITIES, LAYOUT, ETC.

REFORESTATION PLANT LIST

BOTANICAL NAME	COMMON NAME	SIZE	SPACING	ROOT	QTY.
ACER RUBRUM	RED MAPLE	1" CAL.	15' O.C.	CONT.	2
FAGUS GRANDIFOLIA	AMERICAN BEECH	1" CAL.	15' O.C.	CONT.	2
QUERCUS ALBA	WHITE OAK	1" CAL.	15' O.C.	CONT.	2
QUERCUS FALCATA	SOUTHERN RED OAK	1" CAL.	15' O.C.	CONT.	2
			TOTAL TREES		8

PROPOSED REFORESTATION AREA= 0.04 AC. ±
1" CAL. TREES
0.04 AC. @ 200 TRESS / AC.= 8 TREES

NOTE: SEE SHEET 3 FOR REFORESTATION AREA PLAN VIEW

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FOREST CONSERVATION PLAN CERTIFIED BY:
Michael D Klebasko 9-8-15
MICHAEL KLEBASKO DATE
WETLAND STUDIES AND SOLUTIONS, INC.
QUALIFIED PROFESSIONAL PER
(COMAR 08.19.06.01)

Revisions

Rev. #	By	Date	Description

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

Terry Schuman — Date 3/31/16
License No. 19593 — Expiration Date

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Date SEPTEMBER, 2015
Job Number 15-5208
Scale AS SHOWN
Drawn By LS
Approved By TS
Folder Reference ASSISTED LIVING LOT 4 BAY VILLAGE, ANNAPOLIS

FOREST CONSERVATION REFORESTATION NOTES AND DETAILS

FOREST CONSERVATION PLANS OF

LOT 4 AT BAY VILLAGE

TAX MAP 57A, GRID 14, PARCEL 160, LOT 4
972 BAY VILLAGE DRIVE
CITY OF ANNAPOLIS, MARYLAND 21403
SIXTH DISTRICT ANNE ARUNDEL COUNTY ZONED R1 / PM2

Sheet No. FC5 OF 5